

DEPARTMENT OF COMMERCE

BUREAU OF STANDARDS

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UNITED STATES GOVERNMENT MASTER SPECIFICATION FOR
DENIM, BROWN (SHRUNK)

FEDERAL SPECIFICATIONS BOARD SPECIFICATION No. 254b

[Revised March 5, 1927. Supersedes F. S. B. No. 254a]

This specification was officially promulgated by the Federal Specifications Board on December 6, 1924, for the use of the departments and independent establishments of the Government in the purchase of brown denim (shrunk).

[The latest date on which the technical requirements of this revision shall become mandatory for all departments and independent establishments of the Government, is June 6, 1927. They may be put into effect, however, at any earlier date, after promulgation]

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I. GENERAL SPECIFICATION

United States Government general specification for textile materials (methods of physical and chemical tests) No. 345, in effect on date of proposal, shall form a part of this specification.

II. TYPES

The types of denims purchased under this specification, as may be specified in the proposal are:

1. **WHITEBACK.**—The warp shall be brown and the filling shall be white.

2. **MOCK TWIST.**—The warp shall be brown and the filling shall be formed by combining one white roving and one black roving prior to the spinning operation.

3. **PIN STRIPE.**—The warp shall be brown with a white stripe consisting of two white yarns occurring every one-sixteenth of an inch. The filling shall be brown.

4. **HICKORY STRIPE.**—The warp shall be brown with a white stripe consisting of four white yarns occurring every one-fourth inch. The filling shall be brown.

5. **EXPRESS STRIPE.**—The warp shall be formed of alternate stripes of brown and white yarns one-fourth inch wide. The filling shall be white.

6. **WHITE STRIPE.**—The warp shall be brown with a white stripe consisting of two white yarns occurring every one-half inch. The filling shall be black.

III. MATERIAL AND WORKMANSHIP

The denim shall be made of cotton thoroughly cleaned and free from dirty and oily waste. It shall be evenly woven and shall be free from an excessive number of avoidable imperfections of manufacture.

IV. GENERAL REQUIREMENTS

The colors as specified shall be identical with the standard samples obtained on request, and if not obtainable shall be that commonly accepted as commercial practice. A 36-inch width is sometimes required instead of the standard 28-inch width. This change should be specifically stated in the proposal.

V. DETAIL REQUIREMENTS

1. **FINISH.**—The shrunk denim, when submitted to the shrinkage test, shall not shrink more than 2 per cent in the filling or 5 per cent in the warp.

2. **WEAVE.**—The weave shall be a 3-harness twill $\frac{(2)}{1}$, or 4-harness twill $\frac{(3)}{1}$ as specified in the proposal. If not specified, 3-harness twill shall be furnished. (See Sec. VIII.)

3. **THREAD COUNT.**—The thread count shall be as given in "Table of requirements." No minus tolerance will be allowed.

4. **WIDTH.**—The average width of each roll shall be 28 inches if not otherwise specified. A tolerance of plus or minus one-fourth inch will be allowed for both 28 and 36 inch widths. (See Sec. IV.)

5. **WEIGHT.**—The weight per square yard shall be as given in the table. A tolerance of plus or minus $2\frac{1}{2}$ per cent will be allowed.

6. **BREAKING STRENGTH.**—The minimum breaking strength shall conform to the amounts specified in the table as determined by the 1 by 1 by 3 inch grab method. No minus tolerance will be allowed.

7. **LENGTH OF ROLL.**—Rolls of finished cloth shall average 50 to 60 yards and for a double roll 100 to 110 yards. Lengths under 40 yards may be rejected.

8. **COLOR FASTNESS.**—The color shall show good fastness to light, washing, and water, and shall not show an excessive degree of crocking.

Table of requirements

Number	Weight		Yards per pound	Threads per inch (minimum)		Minimum breaking strength	
	Per square yard	Per linear yard, 28 inches wide	28 inches wide	Warp	Filling	1 by 1 by 3 inch grab	
						Warp	Filling
	Ounces	Ounces				Pounds	Pounds
1.	8.6	6.66	2.40	60	38	140	50
2.	9.3	7.27	2.20	65	40	150	55
3.	10.3	8.00	2.00	70	40	155	65
4.	11.4	8.89	1.80	75	44	160	70

VI. METHOD OF INSPECTION AND TEST

1. **SAMPLING.**—In purchases of 10,000 yards or less, sample shall be taken from each 200 yards; 10,000 to 20,000 yards, sample shall be taken from each 400 yards; 20,000 to 50,000 yards, sample shall be taken from each 1,000 yards; 50,000 to 100,000 yards, sample shall be taken from each 2,000 yards; and 100,000 yards or over, sample shall be taken from each 5,000 yards.

2. **FASTNESS TO LIGHT.**—Expose specimen to the action of an ultra-violet light for 36 hours. Compare with original sample and classify as good, fair, or poor fastness to light.

3. **FASTNESS TO WASHING.**—Prepare a 1 per cent neutral soap solution. Heat to about 50° C. Immerse the specimen and stir with a

glass rod for several minutes. After the sample has remained in the solution 10 minutes, remove and rinse. Hang in air until dry. Compare with the original sample and classify as good, fair, or poor fastness to washing.

4. FASTNESS TO WATER.—Immerse a specimen in clear water, at room temperature (50 to 100° F.). After one hour remove and dry in the air. Compare with original sample and classify as good, fair, or poor fastness to water.

5. CROCKING.—The degree of crocking when rubbed with a piece of white cotton cloth both when wet and dry shall be compared with the results obtained using the standard sample, if this is available.

6. SHRINKAGE.—Take a specimen approximately 12 inches square from the sample. Within this specimen with indelible ink mark off exactly a 10-inch square with edges parallel to the warp and filling directions, respectively. Wet thoroughly in water for one hour, allow to dry in air, and measure the marked-out portion.

VII. PACKING AND MARKING OF SHIPMENTS

Packing and marking shall be in accordance with best commercial practice, unless otherwise specified.

VIII. NOTES

A 4-harness $\frac{(3^-)}{1}$ twill weave may be purchased when so specified in the proposal. It must be realized that this is not a commercial weave and should only be specified when the amount is sufficiently large to warrant a special set-up of the loom. This may result in extra cost of the material.

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